DOCUMENT RESUME

ED 394 938 SP 036 630

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TITLE Determining Relationships between Young Children's Cognitive Stage of Development and Art Stage of Development as They Relate to Literacy.
PUB DATE 15 Mar 96
NOTE 15p.; Paper presented at the Southern Early Childhood Association Conference (Little Rock, AR, March 11-16, 1996).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Case Studies; *Childrens Art; Childrens Literature; *Cognitive Development; *Developmental Stages; Educational Environment; *Emergent Literacy; Primary Education; *Reading Ability; *Verbal Development
IDENTIFIERS Lowenfeld (Viktor); Mississippi; Piaget (Jean)

ABSTRACT

The primary purpose of this study was to investigate how children's responses to literature can help develop literacy. The subjects were 15 first-grade students at Overstreet Elementary School in Starkville (Mississippi). Two school observations were carried out prior to the collection of data on individual students. Case studies were conducted for each student to answer the following questions: what do the child's choices, reactions, comments, and questions reveal about cognitive skills related to literacy? Observational data were used to place the students into one of the stages of cognitive growth developed by Jean Piaget. The students fell into the stages of preoperational (ages 2-7 years) and concrete operational (7-11 years). Coinciding with Piaget's developmental stages are V. Lowenfeld and W. L. Brittain's stages of art development. Paralleling the preoperational and concrete operational stages of cognitive development are the preschematic and schematic stages of art development--students portrayed indicators in their drawings that identified each with one of the stages. A study of the relationship between the stage of cognitive development and the stage of art development in relation to the reading abilities of each student showed that for 10 of the 15 students, literacy development was determined by cognitive development. Classification of the artistic responses for these 10 students also paralleled the literacy/cognitive development classification. Cognition and literacy can be encouraged by providing children with a wide variety of reading, writing, and drawing materials, and by helping children become more aware of their environment and their relationship to that environment. (ND)

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ED 394 938

DETERMINING RELATIONSHIPS BETWEEN YOUNG CHILDREN'S COGNITIVE STAGE OF DEVELOPMENT AND ART STAGE OF DEVELOPMENT AS THEY RELATE TO LITERACY

Presented By

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Presented at the annual meeting of
The Southern Early Childhood Association
March 11-16, 1996
Little Rock, Arkansas

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DETERMINING RELATIONSHIPS BETWEEN YOUNG CHILDREN'S COGNITIVE STAGE OF DEVELOPMENT AND ART STAGE OF DEVELOPMENT AS THEY RELATE TO LITERACY

The primary purpose of this study was to investigate children's responses to literature. By better understanding children's responses to literature, we may find ways to help develop literacy.

The subjects selected for this study were 21 first grade students at Overstreet Elementary School in Starkville, Mississippi. Fifteen children returned letters of permission granting approval. Two children returned letters of permission denying approval, and four children did not return their letters of permission.

Two school observations were conducted prior to the collection of data on individual students. The first observation was conducted in the classroom. The purpose of this observation was to draw a map of the classroom and to establish a seating chart for the students. The second observation was conducted in the school library. The purpose of this observation was to draw a map of the library and to observe the method the students used in the process of selecting a book.

Case studies were conducted for each student in order to answer the following research question: What do the child's choices, reactions, comments, and questions reveal about cognitive skills as they relate to literacy?

Findings and Results

Psychologist Jean Piaget, through years of research, developed several stages of cognitive growth. The stages were used by Huck et al. (1993) and Sutherland and Arbuthnot (1991) to develop observational data whereby a child's level of cognition may be determined. For this study, observational data were used as a means of placement into one of the cognitive stages of development. The students in this study fell into the stages of preoperational (2 years old - 7 years old) and concrete operational (7 years old - 11 years old). Data collected from interviews in the library, classroom artwork, and teacher comments helped to identify each student with one of the two stages of development. Those students who were still within some phase of the preoperational stage 2 were Faith, John, Mona, Candy, Tammy, Peter, and Matthew. Those students who were identified with the concrete operational stage 3 were Jessie, Anthony, Katie, Mike, Robert, Susie, Wynn, and Adam.

Coinciding with Piaget's developmental stages are Lowenfeld and Brittain's (1987) stages of art development. Paralleling the preoperational and concrete operational stages of cognitive development are the preschematic and schematic stages of art development. Four students portrayed indicators in their drawings that identified each with the preschematic stage 2. They were Adam, Tammy, Peter, and Matthew. Seven other students portrayed indicators in their drawings that identified each with a stage of transition between the preschematic stage 2 and the schematic stage 3. These students, Susie, Wynn, Faith, John, Mona, and Candy, were in transition. The five remaining students, Jessie, Anthony, Katie, Mike, and Robert, portrayed indicators in their drawing that identified each with the schematic stage 3.

There was a relationship between the stage of cognitive development and the stage of art development in relation to the reading abilities of each subject (see Table 5). Those students who portrayed characteristics of the concrete stage 3 and the schematic stage 3 were currently reading chapter books and included Jessie, Anthony, Katie, and Mike.

There was a relationship between Robert's stage of cognitive development and his stage of art development (refer to Table 5). Both reflected that he should have been reading chapter books.

Susie, Wynn, and Candy were also reading chapter books; however, there was not a relationship between reading chapter books and their stage of art development (refer to Table 5). This could account for the reason that Candy was nervous and not as confident as the other students who were reading chapter books.

With the exception of Candy, those students who portrayed characteristics of the preoperational stage 2 of cognitive development and a transitional stage between the preschematic stage 2 and schematic stage 3 of art development were not reading chapter books (refer to Table 5). Those students included Faith, John, and Mona.

There was not a relationship between Adam's stage of cognitive development and his stage of art development (refer to Table 5). This could account for the reason that he was not reading chapter books.

There was a relationship between the cognitive development of Tammy and her stage of art development (refer to Table 5). Both indicated that she was not ready for chapter books.

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Table 5

Relationships

	Cognitive Stage of Development	Art Stage of Development	Chapter Books
Jessie	Concrete	Schematic	Yes
Anthony	Concrete	Schematic	Yes
Katie	Concrete	Schematic	Yes
Mike	Concrete	Schematic	Yes
Robert	Concrete	Schematic	No
Susie	Concrete	Transition	Yes
Wynn	Concrete	Transition	Yes
Adam	Concrete	Preschematic	No
Faith	Preoperational	Transition	No
John	Preoperational	Transition	No
Mona	Preoperational	Transition	No
Candy	Preoperational	Transition	Yes
Tammy	Preoperational	Preschematic	No
Peter	Preoperational	Preschematic	Nonreader
Matthew	Preoperational	Preschematic	Nonreader

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Two students displayed indicators of the preoperational stage 2 of cognitive development and preschematic stage 2 of art development. This was associated with both of them, Peter and Matthew, being nonreaders (refer to Table 5).

Reading ability or literacy development was defined by the classroom teacher as the ability of the children to read "chapter books." These chapter books were actually trade books that had been selected and placed into the classroom library by the classroom teacher (see Appendix A for a list of the books identified as chapter books by the classroom teacher). Beginning readers start with books that contain concepts which are easy to comprehend, are written in a direct and simple style, and have illustrations to complement the text. An example of a book that children would attempt first is Frog and Toad All Year. More advanced readers attempt books with smaller print and fewer illustrations such as Gertrude Chandler Warner's "Boxcar Children."

Based on a 100-point grading system, those students who were reading chapter books had reading scores that ranged from 90 to 100. Those students who were not reading chapter books had reading scores that ranged from 75 to 90. There was no range of reading scores for the nonreaders. The classroom teacher depended on informal assessment devices, such as observations during individual reading, to determine students' range of reading scores. Chapter book readers met the criteria: could read with appropriate expression and intonation; could read by phrases; could respond to periods, question marks, and exclamation points; could read words correctly; could apply word recognition skills effectively; could self-correct errors; and, could comprehend text. Nonchapter book readers read word by word; lacked a basic

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sight word vocabulary; had difficulty using context clues; could not draw conclusions; and, did not comprehend text.

A comparison of male students and female students revealed that 63% of the males were 7 years old (refer to Table 6). Eighty-six percent of the females were 7 years old. Overall, 73% of the students were 7 years old.

Table 6 shows that 63% of the males were in the concrete operational stage of cognitive development. This is in contrast to the females where 57% of the students were in the preoperational stage of cognitive development.

Males were evenly balanced between the preschematic stage (Stage 2) and the schematic stage (Stage 3) of art development, with two students being in transition. Fifty-seven percent of the female students were in a stage of transition.

Three of the males were reading chapter books, three were not reading chapter books, and two of the male students were nonreaders. Four of the seven females were reading chapter books.

Implications

According to Galda (1982), children's literacy development may be determined by their cognitive development. These findings are consistent for 10 of the 15 students. Four chapter book readers were classified as concrete thinkers, and four children who were not chapter book readers along with two nonreaders were classified as preoperational thinkers. The classification of the artistic responses for these 10 children also paralleled the literacy/cognitive development classification. Four chapter book readers were classified as being in the schematic stage of development. Three children who

were not chapter book readers were classified as being in a transitional stage of development, and one child was classified as being in the preschematic stage. The two nonreaders were classified as being in the preschematic stage of development.

There may be explanations for the five students who did not follow the parallels of development. First, Robert was in the concrete stage of cognitive development (Stage 3) and the schematic stage of art development (Stage 3) and was not reading a chapter book. While there was a relationship between Robert's cognitive development and art development, there was no relationship to his reading level. Robert's lack of involvement with books during free choice center time demonstrated that he did not see a need or purpose in reading and this could explain his lagging development in literacy (Binkley, 1986; Cass, 1967). Second, Susie and Wynn were in the concrete stage of cognitive development (Stage 3) and transition between the preschematic stage (Stage 2) and the schematic stage (Stage 3) of art development. Both students were reading chapter books. The lack of a relationship between their cognitive development and art development demonstrate that development is not always a smooth process. Children may sometimes regress to an earlier stage of art development (Lowenfeld & Brittain, 1987). Third, Adam was in the concrete stage of cognitive development (Stage 3) and the preschematic stage (Stage 2) of art development and was not reading a chapter book. His preschematic drawings demonstrated that he had not made a connection with his environment and the relationships that exist. This makes it difficult for a child to make further connections in reading and comprehension (Lowenfeld & Brittain, 1987), thus explaining why

Adam was not reading chapter books. Last, Candy was in the preoperational stage of cognitive development (Stage 2) and in transition between the preschematic stage (Stage 2) and the schematic stage (Stage 3) of art development. Her transition in art development demonstrated that she had begun to make the connections with relationships in the environment (Lowenfeld & Brittain, 1987), yet her preoperational thinking could account for the reason that she was not confident about her reading.

Protherough (1983) contended that young children have a difficult time expressing themselves and what they know orally. The findings of this study are significant in that they suggest to the classroom teacher that children's artwork and written stories offer many insight into children's cognitive development and, consequently, the development of literacy.

According to Lowenfeld and Brittain (1987), if the objects in a child's drawing are unrelated to each other (a characteristic of the preschematic stage of art development), then that child does not have the ability to relate letters to each other and is not ready to learn to read. Parents and teachers can encourage the development of cognition and literacy by providing children with a wide variety or reading, writing, and drawing materials. Cognition and literacy can also be encouraged by helping children to become more aware of their environment and their relationship to that environment. This developing awareness of their relationship to the environment is reflected in the children's drawing. The artwork of children can act as a compound to unite cognition and literacy.

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Table 6

Cognitive Skills and Literacy Development by Age and Sex

	Age			Cog. Dev.		Art Dev.			Rdg. Level		
	6	7	8	Preop.	Con.	Pres.	Tran.	Sch.	No	Yes	Beg.
Male	2 (26%)	5 (63%)	1 (11%)	3 (37%)	5 (63%)	3 (37%)	2 (26%)	3 (37%)	3 (37%)	3 (37%)	2 (26%)
Female	1 (14%)	6 (86%)	0 (0%)	4 (57%)	3 (43%)	1 (14%)	4 (57%)	2 (29%)	3 (43%)	4 (47%)	0 (0%)
Total	3 (20%)	11 (73%)	1 (7%)	7 (47%)	8 (53%)	4 (27%)	6 (40%)	5 (30%)	6 (40%)	7 (47%)	2 (13%)

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Cass, J. E. (1967). Literature and the young child. London: Longmans, Green.

Galda, L. (1982). Assuming the spectator stance: An examination of the responses of three young readers. Research in the Teaching of English, 16(1), 1-20.

Huck, D. S., Hepler, S., & Hickman, J. (1993). Children's literature in the elementary school (5th ed.). Fort Worth, TX: Harcourt, Brace, & Jovanovich.

Lowenfeld, V., & Brittain, W. L. (1987). Creative and mental growth (8th ed.). New York: Macmillan.

Protherough, R. (1983). How children judge stories. Children's Literature in Education, 14(1), 3-13.

Sutherland, Z., & Arbuthnot, M. H. (1991). Children and books (8th ed.). New York: Harper Collins.

APPENDIX A
AVAILABLE CLASSROOM CHAPTER BOOKS

Available Classroom Chapter Books
(In order from beginner to advanced)

Lobel, A. (1976). Frog and toad all year. New York: HarperCollins.

Warner, G. C. (1992). The boxcar children. New York: Scholastic.

Warner, G. C. (1992). The yellow house mystery. New York: Scholastic.

Warner, G. C. (1992). Surprise island. New York: Scholastic.

Warner, G. C. (1992). Mystery ranch. New York: Scholastic.

MacDonald, B. (1985). Mrs. Piggle-Wiggle. New York: Scholastic.

MacDonald, B. (1985). Mrs. Piggle-Wiggle's farm. New York: Scholastic.

MacDonald, B. (1985). Mrs. Piggle-Wiggle's magic. New York: Scholastic.

MacDonald, B. (1985). Hello, Mrs. Piggle-Wiggle. New York: Scholastic.

Delton, J. (1988). Pee wee scouts: Camp ghost-away. New York: Dell.

Cohen, M. (1989). See you tomorrow, Charles. New York: Dell.

Gondosch, L. (1990). Brutus the wonder poodle. New York: Random House.

Cleary, B. (1987). Ramona Quimby, age 8. New York: Dell.

Woodruff, E. (1990). The summer I shrank my grandmother. New York: Dell.

Blume, J. (1980). Superfudge. New York: Dell.